

CLAIMS

1. A moving-image synthesis device comprising:
 - a synthesis processor which receives a video signal, which includes moving-image data and a moving-image control signal including display timing information of each frame of the moving-image data; and
 - a storage which stores data-for-synthesis, which includes a plurality of items of image-data-for-synthesis and a plurality of items of control-data-for-synthesis associated with the plurality of items of the image-data-for-synthesis:
 - wherein the synthesis processor
 - reads one of the plurality of items of the control-data-for-synthesis from the storage at a timing based on the moving-image control signal as processing A;
 - reads the image-data-for-synthesis associated with the read control-data-for-synthesis from the storage in accordance with the read control-data-for-synthesis as processing B;
 - executes processing to synthesize one frame of the moving-image data and the read image-data-for-synthesis as processing C; and
 - repeats the processing A through the processing C, thereby producing composite moving-image data as processing D.
2. The moving-image synthesis device according to Claim 1, wherein
 - if the read control-data-for-synthesis includes repetition count information specifying that the processing B and the processing C be repeated more than once, the synthesis processor repeats the processing B and the processing C for the repetition count before executing the processing D.
3. The moving-image synthesis device according to Claim 1, wherein

each of the items of the control-data-for-synthesis stored in the storage includes pointer information indicating an item of the control-data-for-synthesis to be used for next synthesis processing; and

in the processing A through the processing C repeated in the processing D, the control-data-for-synthesis read from the storage is the item of the control-data-for-synthesis indicated by the pointer information.

4. The moving-image synthesis device according to Claim 1, wherein

each of the items of the control-data-for-synthesis stored in the storage includes display position information and display size information of the image-data-for-synthesis associated with the control-data-for-synthesis; and

in the processing C, the synthesis processor overlays an image-for-synthesis of a size based on the display size information in a position based on the display position information.

5. The moving-image synthesis device according to Claim 1, wherein

the moving-image control signal includes information of a frame rate of the moving-image data; and

the synthesis processor controls the reading of the control-data-for-synthesis from the storage in accordance with the frame rate.

6. The moving-image synthesis device according to Claim 1, wherein

the moving-image control signal includes information of a frame rate of the moving-image data; and

when the frame rate of the moving-image data is $N \times M$, where N and M are respectively positive integers, and the

repetition count of the processing A through the processing C is M,

if the frame rate is multiplied by L/M , where L is a positive integer, to be set to $N \cdot L$, the synthesis processor multiplies the repetition count of the processing A through the processing C by L/M to set the repetition count to L .

7. The moving-image synthesis device according to Claim 1, wherein the processing C by the synthesis processor includes processing to attenuate amplitude levels of the moving-image data and the image-data-for-synthesis and add the attenuated amplitude levels of the moving-image data and the image-data-for-synthesis.

8. The moving-image synthesis device according to Claim 7, wherein the synthesis processor has a function to adjust an attenuation rate of the amplitude level of the moving-image data and an attenuation rate of the amplitude level of the image-data-for-synthesis.

9. The moving-image synthesis device according to Claim 7, wherein the synthesis processor selectively outputs any of the moving-image data, the image-data-for-synthesis, and the image data obtained from the processing of adding.

10. A moving-image synthesis method comprising the steps of:

storing data-for-synthesis, which includes a plurality of items of image-data-for-synthesis and a plurality of items of control-data-for-synthesis associated with the plurality of items of the image-data-for-synthesis, as a step A;

receiving a video signal, which includes moving-image data and a moving-image control signal including display timing information of each frame of the moving-image data, as a step

B;

reading one of the plurality of items of the stored control-data-for-synthesis at a timing based on the moving-image control signal, as a step C;

reading the image-data-for-synthesis associated with the read control-data-for-synthesis from the plurality of items of the stored image-data-for-synthesis in accordance with the read control-data-for-synthesis, as a step D;

executing processing to synthesize one frame of the moving-image data and the read image-data-for-synthesis, as a step E; and

repeating the step C through the step E, thereby producing composite moving-image data, as a step F.

11. The moving-image synthesis method according to Claim 10, wherein

each of the items of the stored control-data-for-synthesis includes pointer information indicating an item of the control-data-for-synthesis to be used for next synthesis processing;

the control-data-for-synthesis read in the step C through the step E repeated in the step F are the control-data-for-synthesis pointed at by the pointer information.

12. The moving-image synthesis method according to Claim 10, wherein

the moving-image control signal includes information of a frame rate of the moving-image data; and

the reading of the stored control-data-for-synthesis is controlled in accordance with the frame rate.

13. The moving-image synthesis method according to Claim 10, wherein

the moving-image control signal includes information of

a frame rate of the moving-image data; and

when the frame rate of the moving-image data is $N \times M$, where N and M are respectively positive integers, and the repetition count of the step C through the step E is M ,

if the frame rate is multiplied by L/M , where L is a positive integer, to be set to $N \times L$, the repetition count of the step C through the step E is multiplied by L/M to be set to L .

14. The moving-image synthesis method according to Claim 10, wherein

if the read control-data-for-synthesis includes repetition count information indicating that the repetition count of the step D and the step E is one or more,

the step D and the step E are repeated for the repetition count before the step F is executed.

15. The moving-image synthesis method according to Claim 10, wherein the step E includes processing to attenuate amplitude levels of the moving-image data and the image-data-for-synthesis and add the attenuated amplitude levels of the moving-image data and the image-data-for-synthesis.

16. An information terminal apparatus with a moving-image synthesis function, comprising:

an image pickup device which generates a video signal, which includes moving-image data and a moving-image control signal including display timing information of each frame of the moving-image data;

a synthesis processor which receives the video signal;

a storage which stores data-for-synthesis, which includes a plurality of items of image-data-for-synthesis and a plurality of items of control-data-for-synthesis associated with the plurality of items of the image-data-for-synthesis; and

a videophone processor which has a function to send composite moving-image data;

wherein the synthesis processor

reads one of the plurality of items of the control-data-for-synthesis from the storage at a timing based on the moving-image control signal as processing A;

reads the image-data-for-synthesis associated with the read control-data-for-synthesis from the storage in accordance with the read control-data-for-synthesis as processing B;

executes processing to synthesize one frame of the moving-image data and the read image-data-for-synthesis as processing C; and

repeats the processing A through the processing C, thereby producing composite moving-image data as processing D.

17. The information terminal apparatus with the moving-image synthesis function according to Claim 16, further comprising a data-for-synthesis input section for supplying the storage with the data-for-synthesis.

18. An information terminal apparatus with a moving-image synthesis function, comprising:

a video signal input section which receives a video signal, which includes moving-image data and a moving-image control signal including display timing information of each frame of the moving-image data;

a synthesis processor which receives the video signal;

a storage which stores data-for-synthesis, which includes a plurality of items of image-data-for-synthesis and a plurality of items of control-data-for-synthesis associated with the plurality of items of the image-data-for-synthesis; and

an image display section which displays an image based on composite moving-image data;

wherein the synthesis processor
reads one of the plurality of items of the control-
data-for-synthesis from the storage at a timing based on the
moving-image control signal as processing A;
reads the image-data-for-synthesis associated with the
read control-data-for-synthesis from the storage in accordance
with the read control-data-for-synthesis as processing B;
executes processing to synthesize one frame of the
moving-image data and the read image-data-for-synthesis as
processing C; and
repeats the processing A through the processing C,
thereby producing composite moving-image data as processing D.

19. The information terminal apparatus with the moving-
image synthesis function according to Claim 18, further
comprising a data-for-synthesis input section for supplying the
storage with the data-for-synthesis.